TDARS News Letter

G3ZME G6ZME

TELFORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk FOUNDED 1969 www.TelfordHamfest.co.uk

Issue 271 Dec 2015-Jan 2016

www.TDARS.org.uk Programme www.telfordhamfest.co.uk

December 9	*'Radio Propagation' by G0KYA (DVD) followed by Skype with G0KYA*
December 16	*Christmas Meal—Thomas Botfield Pub, Telford Centre. m/c G0UFE*
December 23	*Mulled Wine and Mince Pie Social—club venue*
December 30	*NO MEETING: Monitor 144.600 MHz FM from 8pm*
January 6	*Committee Meeting—GX3ZME on the air*
January 13	*Dr Megan Argo—Radio Astronomy (guest spkr from Jodrell Bank)*
January 20	*SDR Radio, incl demonstration of Simon G0UFE's Elad Transceiver*
January 27	*OPEN FORUM a chance to put forward your ideas for TDARS in the coming year, and how you can help too! Open to all interested*
February 3	*Committee Meeting—GX3ZME on the air*
February 10	*Under-a-Fiver construction competition. Don't be shy—give it a try !*
February 17	*Indoor Bowls evening with LWVH Bowls Club. Light refreshments*
February 24	*Winter Projects #3. All done and dusted? Bring 'em along…..*
March 2	*Committee Meeting—GX3ZME on the air*
March 9	*Main Construction Competition. Please try and bring something electronic you've made in the past year. Award for Novices too.*
March 16	*Portable Events for 2016 preparation, including Marconi IMD, VHF NFD*
March 23	*T.B.A.*
March 30	*TDARS AGM*

For Amateur Radio Exam Training—enquiries to Mike G3JKX (01952 299677)

For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.

For Equipment Loans & Returns contact Don M0TBQ or Ian M0IRP

Radio Amateur Exams- Latest: www.tdars.org.uk/html/training.html

Editorial

Having received several items for this Newsletter, space will be at a premium, so I shall cut the cackle, and get on with the content sent in. **Have a good Christmas everyone !**

MIV

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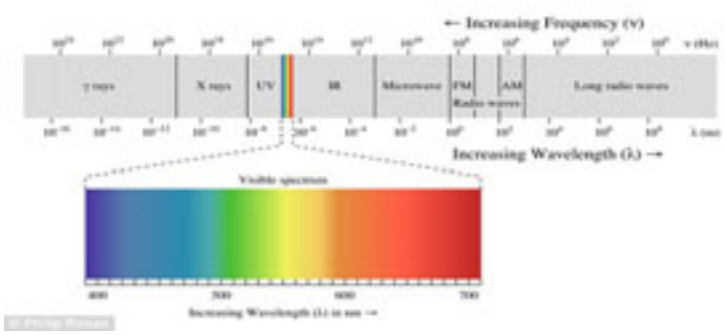
From *Mike G6DFD*: (sub headed 'Big Mistake') Hi Martyn. . . Something for the Newsletter? Title....Surprise announcement about Police Radio being replaced by cell phones.

The two landmarks have arrived almost simultaneously for Orange EE. Under BT ownership, EE will host the new Emergency Services Network (ESN) on its existing 4G mobile infrastructure. It is due to be ready for use by the emergency services from mid-2017, when local authorities will begin gradually abandoning the existing national radio network.

Also from ***Mike G6DFD: Li-Fi is the new Wi-Fi***
The Li-Fi technology uses visible light between 400 and 800 terahertz (THz), and transmits messages through binary code, giving it in-lab speeds fast enough to download 18 movies of 1.5 GB each second.
The new invention hits speeds of 224 gigabits per second in the lab. Scientists are now testing Li-Fi in offices and homes. Li-Fi is uses visible light communication and would be more secure. The system works in a similar way to Morse code, using visible light communication (VLC), but operates at speeds that are too high to be detected by the naked eye. Since the light can't travel through walls, Li-Fi could also be a more secure option down the line, and suffer from less interference from other devices. (Looks more suited to office than home environment—Ed)



TELFORD & DISTRICT AMATEUR RADIO SOCIETY

CHAIRMAN: Eric Arkinstall M0KZB (01743 240286)

VICE-CHAIRMAN: Martyn Vincent G3UKV (01952 255416)
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PUBLICITY : Dave G0CER (01630 638699 or 07971 416940, leave msg)
Committee: Simon G0UFE; Eric M0KZB; Martin 2E0TRO; Brian G6UDX; WebMaster Rob M0TOY; Trophies/Certs: G3UKV;QSL Man. Paul M0PNN; Assist.Curator: Ian M0IRP. Village Hall Committee Liaison officer Martin 2E0TRO

Qtc: News & Information

TDARS MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME.
ROOM BOOKED FROM 7PM - 10PM.
MEETINGS USUALLY COMMENCE AT 8PM
Please note: A current membership card must be shown to borrow TDARS equipment. Please return borrowed equipment promptly .

Following the popular talk and demo given by Matt (G8XYJ) and his father Dave Porter (G4OYX) at the end of September, the decision was made by the committee and members to purchase a new ***Yaesu Fusion Repeater for GB3TF***, to replace the old Tait equipment. It is a DR-1 repeater/transceiver that will work on 2m or 70cm (not both!). Out of the box, it can easily be programmed to receive and re-transmit either standard FM, or the digital mode sometimes called C4FM. It is not compatible with other digital modes. The normal setting is 'auto/auto', which means that it re-transmits whichever mode it detects on the input—ie FM or C4FM. As it stands, it is quite basic in that there are no 'pips' or 'Ks', and it drops carrier very quickly once a user has stopped transmitting. Also it cannot accept both CTCSS and 1750Hz access—it's one or the other. However, this is where we hope to put the 'Amateur' back into Amateur Radio, and the eventual logic may sound not too different to the present 'box'. The frequencies of both TX and RX will remain the same, at least in the short term (433.200 out,434.800 MHz input). Internet linking in the medium-term future is also likely. Watch this space, the tdars Yahoo reflector and our website for developments. It is NOT a plug-and-play project—so please be patient.

The ***'Winter Construction Projects'*** are now well under way, thanks to various suggestions, most of which came our way via Paul M0PNN, but also from Richy M0RKY and Brian G6UDX. The projects include the K1EL morse keyer chip, 0-30 volt adjustable PSU board, multi-component (transistor, R, C, L etc) tester, voice keyer ('parrot') and 2 metre 'Slim Jim' antenna. Much of this Newsletter includes information and guidance for these projects—so read on….. The final Projects evening is on ***Wednesday 24th February***—so that is your personal challenge date for completion—not forgetting the annual Construction competition on March 9th !

The talk given by ***John G1AWJ*** in November about submarine cable communications was well attended, and as enjoyable as the one he gave last year. Perhaps we should invite him back next November too ?

John M0JZH, supported by Eric M0KZB's previous talk, was excellent and very practical. As well as describing how to connect various rigs to a PC, using cables (and even blue tooth), John described how such firmware and software was integrated into logging programs such as Winlog32 and HRD (Ham Radio De-luxe). Using a mobile internet link (yes, it does work at our HQ!) and the club's projector, we could all observe how it can be done. Judging by comments and links on the tdars reflector, several members are now looking at how they can link rig to computer to improve their operating skills, as well as making their stations more flexible and interactive. The recommended supplier of cables is ZLP Electronics (G4ZLP), but of course there are many other sources, which may, or may not, be just as good. Silicon Labs in Scotland has also been mentioned.

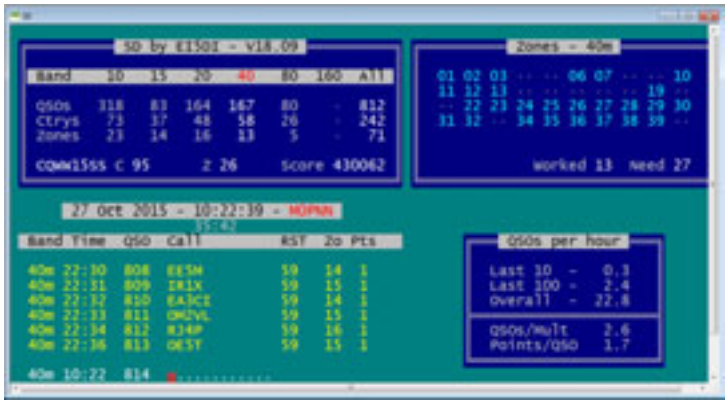
Welcome to new TDARS members, including Paul M6TIL, who has been heard on the Sunday evening 2m net (144.6 FM, 9pm), and another Paul (callsign M6YPW) from the U.S.A

It is hoped that ***TDARS will apply for the RSGB "Club of the Year"*** award in January. We were Regional & National winners in 2011, as illustrated opposite—so here goes……..

The ***TDARS Christmas Dinner*** has moved to the Thomas Botfield pub in Telford Town Centre this year. The deadline for booking places has passed, but no doubt a late-comer or two could be accommodated; Contact Simon G0UFE for information.

Martyn G3UKV still has the manual for the ***Kenwood 2/70 mobile FM*** transceiver, type **TM 701E** in his possession. Someone purchased this rig earlier in the year without its manual. Contact Martyn to make the sale complete.

Some club members enjoy contesting—either to try and win, enhance previous year's placing, improve their station, or simply for the fun of it. ***Dave G0CER*** entered the IOTA contest at the end of July, entering the fixed, single op, un-assisted, SSB, low power, 24hr section (Phew!) and came 4th in the world out of 37 entrants (well done Dave –Ed)- only M0MCV in the UK beat him—Dave scored 160K points, and his UK rival had 433K—so as Dave says, "A big hill to climb next year". The tdars ***microwave group ('UGL, 'UKV, 'NKC, 'UPF)*** have also continued to give the Club's callsign a bashing on the elite (no bias—Ed) bands, mostly operating from the Brown Clee Hill at 540m ASL. On both 5.7GHz and 10GHz, they were overall 2nd, plus an 8th position on 24GHz (that's 12mm wavelength…)
Meanwhile, on HF, ***Paul M0PNN*** has sent in this report: "Back in 2006 when doing the Foundation, Mike G3JKX mentioned it was possible to work DXCC (ARRL award for working 100 counties on any band / mode) with a simple setup in a major contest. Well let`s give it a go. The set-up: one Radio Works Windom antenna 10m-40m, one vertical for 80m (Cheers Mike), One vertical for 40/21Mhz, one 3 element LFA for ten metres. One radio FT 950, 100 watts, one large jar of coffee a PC and a copy of SD. The contest is 48 hours long; the family was told of my intentions. If they choose to book to go and see Harry Potter World on the most important contest weekend of the year (CQ WW CW), then I am doing this one (CQWWSSB), or Harry Potter can @+#£"##? his wand.
I operated a total of 38 hours. "

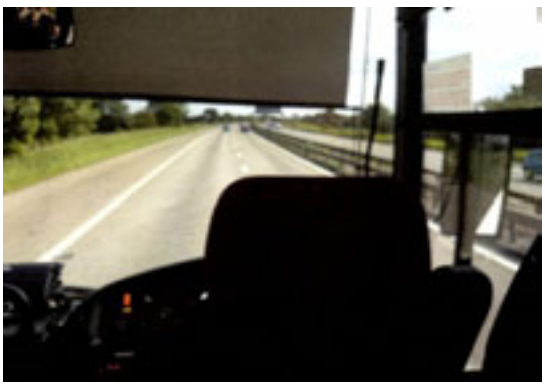


Paul also sent in a list of the 2016 HF Contests, which can be found at www.

JOTA (Jamboree on the Air), organised by John M0JZH went off very successfully in October from the Scout building in Wellington, with the call GB4WSG. A report by the local scouts can be found at http://shropshirescouts.org.uk/activities/jamboree-on-the-air-jota/ . They operated on HF (SSB, CW and PSK) and also VHF, exchanging greetings to many parts of the world. Club members and friends involved included M0TBQ, M0PNN, Graham, M0JZH, 2W0CWH, 2E0DML, G6UDX, G0UFE, G3UKV, 2E0KLS, G8VZT and probably others. One interesting QSO was with someone flying a Boeing 747 just North of Santander in Spain at 38,000ft !

Finally, ***Don M0FHM sent this*** picture and comment :-

" After a comfort break on our coach trip home from Scotland, we noticed that we had left the driver behind ……."



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Several Club Winter Project items follow:

From **Paul M0PNN** regarding the Transistor and Multi Tester from BangGood.com

"DIY **M12864 Graphics Version Transistor Tester Kit LCR ESR PWM** with Case."

Note: The one shown here has been modified with bnc for frequency meter/ signal generator functions.
http://www.banggood.com/DIY-M12864-Graphics-Version-Transistor-Tester-Kit-LCR-ESR-PWM-With-Case-p-997023.html

Today the price is £15.43 Total including case.
The manual is here : **https://copy.com/wBdnTSsdB3DBEmT6**

Also from Paul… K1EL SYSTEMS K16 KEYER IC

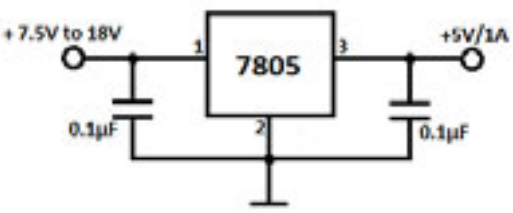
The K16 ic is a single chip Morse code Keyer/Processor chip.
In all, it's an amazing bit of kit and includes the following features.

FEATURES

• Keyer speed range: 5 - 99 WPM • HSCW: 1000, 1500, 2000, 3000, 4000 or 6000 lpm
• QRSS: 3, 6, 10, 12, 30, 60 second dits
• Non-Volatile Message Memory: 240 letters in twelve Slots/dual banked with embedded commands.
• Dynamically allocated message memory • Backspace supported on message entry
• Keying Modes: Bug, Ultimatic, Iambic A or B • Serial Number Generation
• Audio Frequency keying mode • Adjustable Letter Spacing: 25 to 75%
• Adjustable Weighting: 25 to 75 % • Automatic letter-space mode (Autospace)
• Adjustable Keying Compensation: 0 to 31 mSec • Paddle swap command
• Beacon: Programmable interval: 1 to 99 seconds • Sidetone Output: TTL Square wave, 100Ω output Z
• Continuously adjustable Sidetone frequency• keying output: TTL, high true when keyed
• Speed control potentiometer • Push-button user interface • 39 easy to use commands
• Operating Voltage: 2.5-5.0 VDC, built in oscillator • Low Power Consumption • Supply Voltage Monitor
- Two User Configurations each with callsign • Rx and Tx Practice Modes • Ability to key two separate radios

All of the above and more for about £10 including postage from K1EL in the USA.
The whole lot including a case should cost less than £25. I used some mepads & mesquares to mount the chip and other components but you don`t have to— dead bug construction would work well. For mepads & mesquares join gqrp club and buy from here http://www.gqrp.com/sales.pdf . Think about how you're going to use it, in the field or at home, both? Does it need a speaker do you need to be able to turn the speaker off? Use a straight key without turning the keyer off each time you TX. Do you need mains and batteries power both? 3.5mm or 6.5mm plugs in/out both?
The box I used is 13.5cm long 13cm wide 4.5cm deep. Its split in the centre along its length and the ends come out.

The power supply is 9v dc or 13.8 switchable I used a 7805 voltage regulator with a couple of caps see below. The only real problem I had was C8 must be within 5% of 0.1uf or the memory keyer won`t work properly. **If you have any problems or need parts, please ask. - Paul M0PNN**



Thanks for Newsletter input this time from Paul M0PNN,
Don M0FHM, Dave G0CER, Mike G3JKX, Richy M0RKY, Mike G6DFD, Rob M0TOY
Next edition early February 2016: Keep it coming please!

450 ohm ladder line "Slim Jim" Aeriel for 144Mhz By Richy M0RKY

(based on the article by Alan Wilson KE4NU)

Parts and tools list:

A little more than 1500mm of 450 Ohm "ladder line" feeder

As much RG58 coax as you think you will need to connect to your rig (min 2m or so but 5m+ is recommended)

Plug of choice for your rig (I used PL259 and use couplers to connect to my handheld as the analyser needed the 259)

Soldering iron and solder

Cable ties

Side cutters

Pliers (I used long nose pliers)

Self-amalgamating tape

Analyser (eg MFJ259)

Dimensions:

Long side 1480mm (58 ¼ inches), Short side 490mm (19 ¼ inches), Match 90mm (3 ½ inches)

***Method of construction*:**

1) Measure out a little more than 1500mm (about 60 inches) of the ladder line and strip about 20mm of each end of each conductor
2) Using a pair of pliers to aid you, fold each conductor towards its partner ensuring the total length is as close to 1480mm as is practical.
3) Cut the folded connectors so they overlap but not stick out from the opposite side, then solder them.
4) Choose which end is going to be the strongest and cut a triangle in the plastic "ladder" just big enough for the nylon string to tie off to; this will then be the top.
5) Measuring from the other end measure 490mm and 510mm (19 ¼ and 20 inches) then cut out the 20mm (¾ inch) gap.
6) Next without cutting it out, strip the insulation from the section about 60mm to 120mm (2 ¼ inch to 4 ¾ inches).
7) Prepare the coax by attaching the plug of choice on one end and striping the other to a pig tail exposing about 50mm of each conductor (I would recommend not tinning the pigtails at this stage as they will be easier to adjust later).
8) Wrap the pig tail of the centre conductor to the exposed portion of the longer side of the ladder (non cut side) and the pig tale of the shield to the exposed section closest to the cut section, ensuring they can slide up and down for tuning and some slack in between the 450 conductors (you'll see why later) .
9) Loosely attach some cable ties to the coax and bottom of the ladder line, tight enough to hold, but loose enough to feed in or out during tuning.
10) Make a choke balun out of 2 full turns of coax with a diameter of about 90mm (3 ½ inches) and cable tie into place.
11) Throw the string over a tree branch and haul up to a working position and connect the analyser to find the resonant point in the current position.
12) Lower the whole thing and move the wrapped pig tails whilst keeping them parallel and adjust to obtain a low SWR at the point you want. (I found the higher the 450, the higher up the band - but your results may differ)
13) Repeat step 11 until the position is where you want, then lower and tighten the cable ties and solder the pigtails

>>>>>>>Continued next page

14) Raise and do step 11 one last time to make sure the pig tails didn't slip during soldering (if they have you can further tune by pulling the pigtails apart from each other slightly, depending on what slack you left when soldering.

15) Once you are happy tighten all cable ties so nothing can move or slip then seal all exposed metal, joints etc with the self-amalgamating tape.

16) Pack everything away and enjoy on SOTA or RAYNET, or whatever.

A:

Step 2 and 3 bending and soldering the ends. I find using the pliers to hold the wire below the intended bend and using my finger to bend the conductor over until it rests on the side of the pliers also gave a near right angle.

B:

Step 4 triangle cut and string tied near the top of the aerial for hanging

Step 5 cutting the gap (I cut extra off before starting to line up this gap with a solid section for stability, but this is not a major concern)

C:

Step 10 the choke balun done with sellotape while tuning and secured with cable ties afterwards.

D:

Step 13 after adjusting the pigtails solder and seal (it is preferable that the coax would come away in the centre of the 450 but this one wouldn't secure so improvised by cable tying to the screened end.)

>>>>>>Continued next page

E:

Step 14 if after soldering the SWR is out widen the 450 conductors to fine tune. (on this one the coax seemed to stay in the centre better.)

F:

Step 15 cable ties originally left loose for tuning and tightened later at the bottom end of the 450.

G:

Step 16 rolled up and sellotaped for storage approx. A4 size.

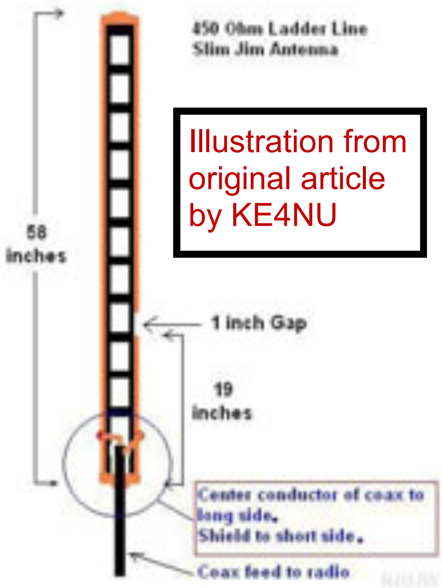


Illustration from original article by KE4NU

<u>Results</u>:

Best result I got was 1:1 on 145.00 and no higher than 1.1:1 on the rest of the 2m band on the production model, that didn't require fine tuning (and all measurements are confirmed using this one).

The prototype needed the fine tuning as was showing 1.5:1 at the band edge and 1.3:1 in the centre before fine tuning and now shows better than 1.1:1at close to 145.00 and 1.1:1 over most of the band and 1.2:1 only at the edge.

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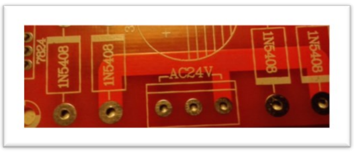
<u>0-30V 2mA - 3A Adjustable DC Regulated Power Supply Kit with Short Circuit And Current Limiting Protection.</u> By Paul M0PNN.

At time of writing the 0-30V 2mA - 3A Adjustable DC Regulated Power Supply kit with Short Circuit and Current Limiting Protection is £6.92 including postage. The quality of the parts and the circuit board is very good. I have written this to help anyone who wishes to build this project as no instructions come with the board.

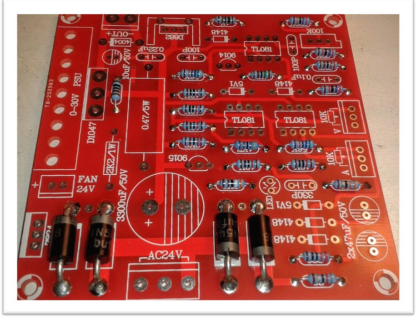
<u>Construction</u>

The circuit board requires a 24v ac supply capable of maintaining a current of over 3 amps easily without overheating. The holes for the components are generous so the solder will wick though to the other side of the board. This is not a problem but can make removing or replacing a blown component a little harder. The decals on the board indicate where each part should go but once it`s been installed you can no longer see the value of the part. Take a picture of the board before you start in case you place a part in the wrong place.

Let's start with the four IN5408 silicon rectifier diodes; make sure the white stripe on the diode matches the stripe on the board.



Next the ¼ watt resistors five band 1 % tolerance.



I place the resistors so the brown in this case tolerance band is orientated the same way on board. It makes easier to find should you place a resistor in the wrong place.

(Editor's note: In several places I have edited the finer details, such as the colour bands/resistor values to shorten the article for the Newsletter. If in doubt, please contact Paul, or another experienced constructor.)

That's the resistors installed; now the Diodes.

Be careful that the stripe on the diode matches the strip on the board.

1) Four IN4148 Silicon switching *diodes*.
2) Two C5V1 5T Zener Diodes.
3) One IN4004 Diode.

Next three eight pin zil sockets these are not included in the kit but well worth using if a TL081CP chip needs replacing. Make sure the notch on the zil socket matches the shape on the board.

Next The Monolithic Capacitors.

1) One 224nf marked 224 on capacitor body the circuit board marked 0.22UF.

2)Two 100pf marked 101 on capacitor body the circuit board marked 100P.

3) One 100nf marked 104 on capacitor body the circuit board marked 0.1uf.

4) 330pf marked 331 on capacitor body the circuit board marked 330P.

Next The Transistors.

Take care to correctly orientate the transistor so its shape matches the shape on the board.

1) One S9014 NPN transistor marked 9014 on the board.

2) One S9015 PNP transistor marked 9015 on the board.

3) One 882P NPN power transistor. Before installing the transistor a heat sink must be installed. Orientate the heat sink so its shape matches the shape on the board solder in place. Then attach the transistor to the heat sink with the small bolt provided now the transistor is at the correct height it can be soldered into place.

4) One D1047 High power NPN epitaxial planar bipolar transistor. This is where you start to customize the board for your own use by adding a heat sink I used an old computer processor heat sink with a 12v cooling fan. The heat sink must not be connected to the circuit in anyway. I drilled and tapped a few 3mm holes in the base of the heat sink to mount it onto the board.

After installing the heat sink measure and mark the position of the transistor mounting hole. Remove the heat sink from the board for the next operation drill and tap a hole in the heat sink. Then attach the transistor to the heat sink with a small bolt. Re-attach the heat sink to the board now the transistor is at the correct height it can be soldered into place. Make sure the legs of the transistor don`t touch the heat sink.

Next the Electrolytic Capacitors.

When installing remember + or plus is the longest leg of the electrolytic capacitor. The – minus side of the electrolytic capacitor is shaded and is the shorter leg. The – minus side is marked on the board with a shaded area.

1) One large 50v 3300uf electrolytic capacitor.
2) Two 47uf electrolytic capacitors.
3) One 10uf electrolytic capacitor.

Next The 10K potentiometers.

You can either directly solder the 10K potentiometers to the board or use the three pin sockets which came with the kit. Use the three pin plugs with yellow green, blue wires if using the sockets. The 10K potentiometers that come with the kit will only let you use a thin walled enclosure, I swapped them for larger 10K potentiometers in my project. The socket marked A is the current limiter, socket marked V is the voltage limiter.

Other Sockets.

1) The fan socket is a two pin socket next to heat sink. If you don`t have a plug that fits this socket and wish to use the fan supply then solder in some suitable wires.
2) The AC24 Supply socket this is a three pin socket but only the pins at either end are used the middle pin is not used but solder it in anyway.
3) Solder in the two pin output socket marked –OUT+.

The Over Current indicator Led.

You can solder the Led straight to the board or use header pins or a wire to connect to indicator led to the board. The negative side of the Led is pointed to by the arrow on the board. Remember to longest leg of the led is positive.

Next the 100k varable resistor.

The resistor is blue with a brass slot head bolt at one end install this with the slot head matching the decal on the board.

Next the 24v 7824 voltage regulator.

The 7824 voltage regulator is used to power the fan on the main heat sink supplied by the kit builder. Most cpu and computer fans run off 12v it may be better to use 7812 voltage regulator. If you're going to use a voltage regulator in this position I would fit a heatsink. Don`t use the same heatsink as the D1047 transistor without insulating the back of the voltage regulator or it will fry it.

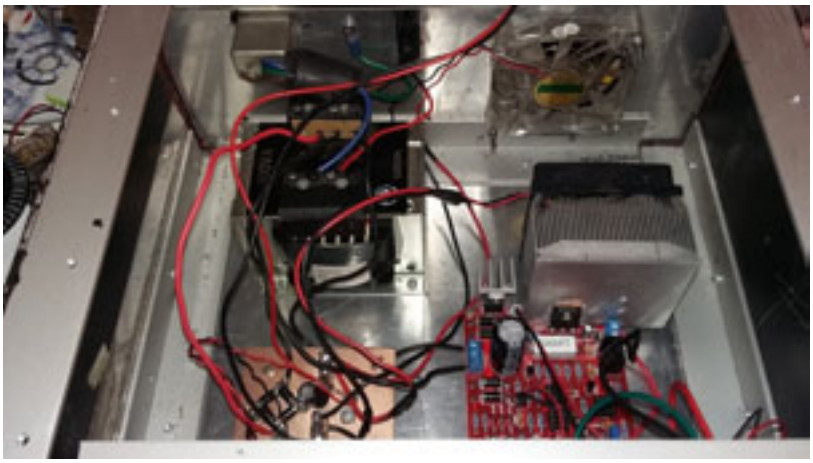
Calibrate the voltage output.

That`s it for the board construction next it`s time to calibrate the voltage output so it reads zero.
1) First connect a 24v AC supply to the AC24 Supply socket.
2) Connect the probes of a digital multi meter to the socket marked –OUT+.
3) Turn both 10K potentiometers fully clock wise.
4) Select a low voltage range on the digital multi meter say 2v turn the brass slot head bolt on the 100k resister until the voltage reads zero then select a lower range say 200mv. Again turn the brass slot head bolt on the 100k resister until the voltage reads zero.

Customizing Your Project

The whole point of this board is to use it with whatever power supply you have etc.

My supply is a transformer with taps at 12v and 24v. I added a bridge rectifier at the 12v tap to run three cooling fans. One to blow cool air into the case one on the output transistor heatsink. One to blow the heated air out of the case. The case fans and covers came from an old computer power supply as did the mains socket with built in mains filter the on/off switch on the rear of my project. The stand-offs for bridge rectifier board came from an old PC as did the main output transistor heat-sink which is a cpu cooler. The case is made from old car parking signs, the angle aluminium also came from a skip so did the paint for the aluminium. The transformer came from an old Pay and Display parking meter (!) the rest came from the junk box.



Voltage and Current display Meter.

Simple panel meters are available on ebay 'bangood' etc that show voltage and current drawn and only cost a couple of pounds. The trouble with this sort of meter is the display supply and the voltage/current readings are not separate. This means the display supply and the voltage/current readings which pass though the meter can`t have a separate supply. If you use the supply straight from the PSU output as soon as the voltage falls below 4v the display disappears. I tried powering the display from the 12v transformer tap, and the 882P on the board popped and let out the magic smoke contained within. The meter is powered from the 24v fan socket on the board and works well.

The finished project.

@g3zme

E-mail to the TDARS reflector, 13 October *(after all the talk of rigs linked to PCs, phones, tablets, etc etc)*

Hi
Well, it`s like this as I sit feet up on the computer desk with both my rigs connected to HRD.
The thought of having to get up and change frequency by moving a knob on the radio is terrifying. In fact I don`t need to see the radio - HRD will turn the FT950 on and off for me as well. Press the menu button, turn the selector knob the to find power, turn other to turn it down, then hold the menu button for two seconds, or move a slider on HRD. Call me Mr slider every day. HRD on one monitor, dx cluster on other, log book in other rigs out of the way under the bench:
Heaven.
Cheers - Paul M0PNN

PS You'd better be Welsh on Saturday. **(written before the Wales / England Rugby Match—Ed)**

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Mike's Piece. December 2015

We all use the phase 'turn the light off'. However, unless you have a rotary dimmer switch, you actually switch the light off. The 'turn off' comes down to us from the taps used for gas lighting.

Similarly, during the war, when listening to the radio or watching TV, we used the phrase 'turn it over onto the other side', when we meant 'change station or channel'. This 'turn over' comes from Crystal Set days. There were, as now, BBC stations on Long and Medium wave. Some crystal sets had a multiway socket into which one of two coils was plugged. To change bands, the coil in use was pulled out of the socket and the coil former turned over so that the other coil, wound on the same former for the other waveband, would then be in use. Band-change switches came along later!

Nowadays, rigs have VHF and UHF capability and use double (or triple) superhetrodyne receivers. The first IF is made high, up about 70MHz with a bandwidth of over 2 MHz. This means that the IF bandwidth is wide enough so that it is not necessary to tune across the frequency range of the input to the RF stage. A VFO driving the second mixer tunes across the IF bandwidth, reducing the wanted signal to a lower IF of, say, 500kHz. In a triple superhet this frequency may be hetrodyned again down to say, 50kHz, with its narrow bandwidth; perfect for CW operation. By the way, having the first IF very high, the chances of second channel interference is dramatically reduced.

Foundation licence holders may wonder why it is necessary to have a knob marked BFO (Beat Frequency Oscillator) or marked with RIT - I +. When using SSB, the carrier wave you learnt about on the F course is not transmitted, neither is one of the sidebands. To be able to demodulate a SSB signal in order to resolve the audio, the carrier wave must be put back exactly on the transmitted frequency. The trouble is that, even though you and the other half of the QSO may have rigs with identical frequency readouts, they may not be exact enough. So the BFO control, sometimes call the CIO (Carrier Insertion Oscillator), is needed to cancel out the difference. The demodulated audio frequency needs to be matched to within 2 or 3 Hertz to resolve the voice correctly. Many people, on meeting a person at a Rally, whom they have spoken to often on the air, are surprised by the difference in their voice in the flesh. All due to a slight mismatch in the transmitted and received frequencies. RIT? 'Receive independent of Transmit', in other words, your transmit frequency remains on the displayed frequency but the receive frequency can be slightly changed without effecting the TX frequency.
On many sets you may also have a TIR control, 'Transmit Independent of Receive'. Here you can move the TX frequency without affecting the Rx frequency. This is very useful if you want to work a DX station who is usually 'listening up' thus avoiding the pile-up swamping his signals with the deluge of the many trying to work him.

Did you know that resonance was call synchrony in the old days. Synchrony is the only word I know with 6 consecutive consonants.

All those considering joining the next Bath Based Distance Learning Course commencing in late January, can apply now to <G0FUW@tiscali.co.uk>

73 Mike G3JKX

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LATE ITEM: Operating from Martyn 'UKV's shack, GX3ZME took part in the 160m Club Calls contest in November. He had 88 valid SSB QSOs, scoring 1294 points over the 3 hour event.

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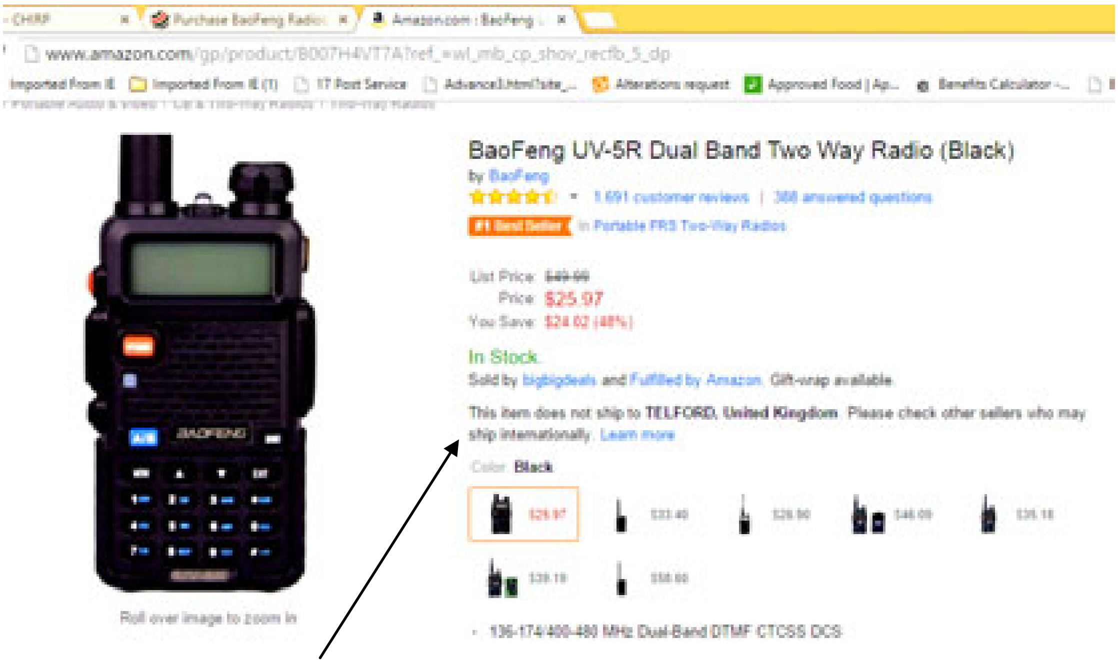
Richy M0RKY came across this curious advert . . . ..



All looks well, until you see the shipping information:
What have we done to deserve this from Amazon ???

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A couple of postscripts re the **0-30v PSU project** (pages 8-10) following a query from Paul—"***I picked my transformer by the time honoured method of looking in my junk box and finding one that looked big enough. How should I have picked it?"***

From **Mike G3JKX**:
24v x 1.414 gives the peak voltage, as all transformers are described with RMS voltage output. So you get 33.946v DC but take away 3.2volts for the silicon diodes in a bridge or full wave rectifier -- leaving 30.7 volts. Nice.

And from **Rob M0TOY**:
Depends which rectifier circuit you choose. With a centre tapped transformer, can use two diode (less voltage/full current) , four diode - 'bridge' (more voltage less current) (or even one diode half wave).
You say "24ac with tap at 24v" normally description is 24-0-24 (48V out) or 12-0-12 (24V out);
You normally find transformers with an ODD ac voltage out to supply a standard dc supply such as 24,15,12,5V.
Output without a load will be peak voltage, ie drops with load, ripple depends on capacitor.

If you don't know the current (power) rating of a transformer, it is common to compare physical size to a known transformer. Old alarm panel transformers 15-0-15 ? May be suitable....
Calculator to play with here.
http://www.trans-tronic.co.uk/rectifier/?circuit=Full+wave+-+capacitor&dc=1&voltage=48&current=3&calculate=